

MULTI-AXIS SOLID ACCELEROMETERS

ABSTRACT OF THE DISCLOSURE

A multi-axis solid state accelerometer is made of electricity conductive material and is made by way of micro-machining. The main structure includes at least one proof mass connected to an anchor by several sensing beams and two boards are located on two sides of the main structure and fixed to the anchor. The sensing beams make the proof mass movable in parallel to or perpendicular to the boards. The surfaces of the proof mass include several grooves, which are parallel to the first axis and the second axis, and an area that has no grooves. Each board that face the grooves include two sets of electrodes and each of which includes several elongate electrodes located corresponding to the grooves. The two sets of elongate electrodes are located interposed each other. The board facing the area having no grooves has electrodes. The electrodes and the surfaces of the proof mass form detection capacitors for each axis. The component of the acceleration on each axis drives the proof mass to move along the respective axis and the capacitances of the corresponding capacitors are changed.